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10/591,528

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Timothy J. Fawcett

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EXAMINER

HOQUE, FARHANA AKHTER

ART UNIT

PAPER NUMBER

2831

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/591,528 | <b>Applicant(s)</b><br>FAWCETT, TIMOTHY J. |  |
|                              | <b>Examiner</b><br>FARHANA HOQUE     | <b>Art Unit</b><br>2831                    |  |

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16-18 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-8 and 10-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>9/1/2006 and 8/24/2007</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

This Office Action is in response to the Applicant's communication filed on 8/24/2007 and preliminary amendment concurrently filed therewith. In virtue of this amendment, claim 15 is cancelled; and claims 1-14 and 16-18 are currently presented in the instant application.

#### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 110 (a)-(d), which papers have been placed of record in the file.

#### ***Drawings***

2. The drawings filed on 9/1/2006 are accepted.

#### ***Information Disclosure Statement***

3. The information disclosure statement (IDS's) submitted on 9/1/2006 and 8/24/2007 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Objections***

4. Claim 16 is objected to because of the following informalities:

Claim 16, lines 1 and 2, "for characterising a three phase transformer using a method as claimed in claim 1" should be changed to - - for characterising a three phase transformer - -;

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schucht (U.S. Patent No. 5,276,402) in view of Muller et al. (EP 0 260 500).

With respect to claim 1, Schucht discloses a method of characterising a three phase transformer having three input terminals [x1, x2, x3] (see Fig. 7) and three output terminals [H1, H2, H3] (see Fig. 7) using a power supply, the method comprising the steps of:

sequentially connecting the power supply (see Fig. 7) between all three available pairs of input terminals [x1, x2, x3] (see Fig. 7) selected from the three input terminals [x1, x2, x3] (see Fig. 7) of the transformer [40] (see Fig. 7) so as to energise each available pair of input terminals [x1, x2, x3] (see Fig. 7) in turn; during energisation of each pair of

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terminals measuring the voltage between all three available pairs of output terminals [H1, H2, H3] (see Fig. 7) selected from the three output terminals [H1, H2, H3] (see Fig. 7) of the transformer [40] (see Fig. 7); and processing the measured voltages to characterise the transformer (see col. 8, lines 29-32).

Schucht does not disclose using a single phase power supply between all three available pairs of input terminals.

Muller et al. discloses a device for testing three-phase coils used in electric high-tension supply networks which includes a single phase power supply between all three available pairs of input terminals [7] (see Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use as the power supply disclosed by Schucht a single phase power supply between all three available pairs of input terminals as taught by Muller et al. because a single phase power supply is a well know type of power supply commonly used in testing circuits since it is easier to use and less expensive than other types of power supplies which will predictably reduce manufacturing costs.

With respect to claim 2, the combination of Schucht and Muller et al. discloses a method as claimed in claim 1 wherein the measured voltages are processed to characterise the transformer according to its winding configuration (see Schucht col. 1, lines 18-23).

With respect to claim 3, the combination of Schucht and Muller et al. discloses a

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method as claimed in claim 2 wherein the transformer is classified as D-D equivalent, D-Y equivalent, Y-D equivalent or Y-Y equivalent (see Schucht col. 8, lines 41-48).

With respect to claim 9, the combination of Schucht and Muller et al. discloses a method as claimed in claim 1 wherein the transformer is characterised according to the presence of neutrals on its primary and/or secondary side (see Schucht col. 9, lines 5-15).

***Allowable Subject Matter***

7. Claims 16-18 are allowed.

With respect to claim 16, the prior art fails to teach the inclusion of a control means comprising a processing means, the control means being operative to control the power supply, means for measuring voltages and processing means thereby to characterise a transformer.

Claims 17 and 18 are considered to be allowable due to its dependence on allowable claim 16.

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Claims 4-8 and 10-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With respect to claim 4, the prior art fails to teach the three voltages measured during energisation of each pair of input terminals are processed to identify the highest, lowest and intermediate value and the difference between the intermediate value less the lowest value computed and then divided by the highest value to produce three figures of merit, one associated with energisation of each pair of input terminals.

Claim 5 is considered to be allowable due to its dependence on allowable claim 4.

Claims 6 and 7 are considered to be allowable due to its dependence on allowable claim 5.

Claim 8 is considered to be allowable due to its dependence on allowable claim 7.

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With respect to claim 10, the prior art fails to teach the transformer having three input terminals H1, H2 and H3 and an input neutral terminal HO and three output terminals X1, X2 and X3 and an output neutral XO and when the single phase power supply is connected between input terminals H1 and H3 the highest voltage measured between output terminals X1 and X3, X2 and X1 and X3 and X2 is saved ( $X_{pp}$ ) and the highest voltage measured between X1 and XO, X2 and XO and X3 and XO is saved ( $X_{pp}$ ) and further comprising the step of connecting the single phase power supply between H1 and HO, measuring the voltages between X1 and X3, X2 and X1, and X3 and X2, saving the highest value ( $X_{pn}$ ) and determining the ratios of the first saved voltage with each of the second and third saved voltages respectively ( $X_{pn}/X_{pp}$  and  $X_{np}/X_{pp}$ ) thereby to determine the presence of neutrals on the primary and/or secondary side of the transformer.

Claim 11 is considered to be allowable due to its dependence on allowable claim 10.

With respect to claim 12, the prior art fails to teach the phase displacement of the transformer being calculated by the following steps:  
determining if the primary and secondary winding configurations are similar and if not allocating a value of 1, otherwise allocating a value of 0;  
determining a configuration result factor and adding a value according to the configuration result factor to the value allocated in the previous step;



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determining if the secondary winding of the transformer windings is reversed and if not adding 6 to the value calculated in the previous step, otherwise leaving the value unaltered; and if the value is greater than 12 subtracting 12, otherwise leaving the value unaltered, thereby to determine the phase displacement of the transformer.

Claims 13 and 14 are considered to be allowable due to its dependence on allowable claim 12.

### ***Citation of Pertinent Prior Art***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Chiffert et al. (U.S. Patent No. 4,595,988) discloses an electronic meter for measuring active and reactive energies in a three-phase network.

Sinha (U.S. Patent No. 3,823,369) discloses a transformer tester for indicating conditions in power transformers.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FARHANA HOQUE whose telephone number is (571)270-7543. The examiner can normally be reached on Monday - Friday 8:30-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FARHANA HOQUE/  
Examiner, Art Unit 2831

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Art Unit 2831

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